rdx Technologies Corporation

RDX Technologies Corporation
And Subsidiaries

EXHIBIT
D

October 7, 2013

INVESTIGATION SUMMATION And REPORT

A summation of the investigation and due diligence into the historical activities in technology development and production at the Carthage Missouri Facility from 2006 to 2013.

By Dennis M Danzik

Board Materials Included

Background Facts:

In late November of 2012, Dennis M. Danzik, a Director of Ridgeline Energy (now "RDX") was invited by a banking contact (Demetrious Diakolios) to review a business that he and his partners ("GEM") were involved in that was failing financially and that they were looking to possibly make an investment. Diakolios though that Danzik would be a good operator of the Carthage plant and that RDX would be interested in buying the plant.

In late December of 2012, RDX attempted to complete and on site audit of CWT on Long Island in New York but RDX independent auditors Squar Milner ("Squar") as well as then Plant Controller, Candy Blazar were met with hostility and an environment of non-cooperation by former CWT CEO, Brian Appel and former CWT CFO Cohn. As a result, a qualifying audit was completed with limited information to the best effort of Sqaur.

On or about April 9th, 2013 Dennis M. Danzik was informed by Jean Noelting that RDX (then Ridgeline Energy) needed to close on the transaction to purchase immediately due to the fact that GEM did not make the required investment into Renewable Environmental Solutions ("RES") as agreed. RDX was only given a few days to close the transaction with substantial cash and efforts already invested by RDX in the Carthage facility.

On April 15th 2013, RDX closed on the purchase of a facility located at Carthage Missouri. Prior to the close, due diligence was being completed on the purchase and such purchase was subject to a successful independent audit by Squar Milner of Changing World Technologies "CWT" and Renewable Environmental Solutions "RES", as well as an approval from the Toronto Venture Exchange.

Upon closing, as required by regulation, RDX began working with a qualified EPA assurance firm; Genscape of Louisville Kentucky. Genscape is one of the most respected firms in this field. Genscape failed the RES fuel as qualified in mid June. As a result of the Genscape finding, RDX began its own investigation into the fuel, the claimed technology and air quality claims.

In late May the Carthage facility was contacted by the Internal Revenue Service and the agent in charge stated that the file for RES failed to contain the required ASTM fuel testing, and that no fuel testing could be found for the period of 2009 to December of 2012.

In June it was discovered that the Foth Engineering report was probably not completed as per RFS2 regulations and that the supervising engineer who signed the report, never completed the on site work required. Many investors and RDX relied on the reports filed by Foth as a major part of their due diligence.

Background Facts:

Due to the complexities of the finding of Genscape and Genscape disqualification of RES from the QAP program due to fuel findings, Dennis Danzik, through his personal contacts Hank Habicht, (former COO Deputy Administrator EPA /U.S. Deputy Attorney General) and Steve Johnson (former EPA Administrator and author of RIN Program), was able to make contact with Paul Argyropoulos Senior Policy Advisor of the OTAQ Division of the Environmental Protection Agency. Mr. Argyropoulos is the expert at the EPA and involved heavily in the Renewable Fuel Standards program (RFS2) and RINs and the qualification thereof. Within Mr. Argyropoulos' s detailed phone calls, Danzik began to come upon facts that should have disqualified RES from the RFS2 program and therefore RINs. At this point Mr. Danzik started to greatly expand his investigation into the manufacturing methods and quality of the CWT/RES renewable diesel ("RDO").

In early July, historical records for RINs within the EPA system looked inconsistent and out of sync with production logs.

Also in mid July the Brookhaven study of the CWT RDO came under scrutiny when Dennis M Danzik started to question pH, BTU variances, and inconsistency in ASTM D396 testing with the RDO and what was reported by Brookhaven. It would later be discovered that the samples sent to Brookhaven by CWT management were actually produced in the TDP lab in Philadelphia and not RES in Carthage. The samples were also "doctored" to meet ASTM D396 and ASTM D975. Many investors and RDX relied on the accuracy of the National Laboratory report for investment and acquisition purposes.

In mid July, Candy received direct orders from the IRS that 637 tax returns have triggered an audit of all past payments made and that a series of fuel tests would be conducted and in addition RES was to file a new 637 application and prepare for qualification under ASTM 6751, ASTM D396 or ASTM D975.

During the last week of July, after completing several in house testing sessions during July on the RES RDO, and finding irregularities with the RES RDO passing ASTM D396, Danzik ordered a stack test (air quality) to be completed to see if air quality results were in line with burning straight "Brown Grease" collected from waste and then merely filtered at high temperature. The results were published by early September of 2013.

In August, the IRS requested a copy of all documents, including tax returns and production logs from 2010 to December of 2012.

In August 2013, about 90 days after closing; RDX obtained access to some, but not all of the auditable records of CWT by agreeing to sign a license agreement with an entity owned by Brian Appel. The license was presented and negotiated by RDX board member, Bruce Macfarlane. Danzik, under protest, and due to the pending investigation signed the license presented by MacFarlane under protest and under the promise from MacFarlane that if there were any problems, MacFarlane would challenge the license claims by Appel.

In mid August, through a mechanical failure of "R-250" (the main processing reactor) at RES, Danzik discovered that the RDO was being produced without a fully functioning reactor.

Background Facts:

At the end of August and at the beginning of September, substantial operation problems with the RDO started to arise at Omega Proteins a 15 month old customer and largest user of the CWT/RES RDO. Subsequent investigation, remote, laboratory and in person showed substantial equipment and other damages due to the acidity of the RDO. Omega immediate ceased using the RDO. RDX acted immediately. To date, repairs at Omega performed by RDX exceed $ 650,000.00, lost sales during September total over $ 1.4MM and yet to be completed repairs after shutdown at Omega (second week of November) are expected to exceed and additional $ 1.1MM. In addition Omega is asking for financial damages in the amount of just under $ 500,000.00.

During mid September, due to the pending complete mechanical failure of R-250, Danzik with the help of Candy Blazar discovered the fact that R-250 was not functioning for over 5 weeks, but "RDO" was being produced. John Shaw, the then Plant Manager resigned over "burdens" that he felt he was carrying. A crew made up operators rebuilt R-250, which consists of nothing more than a pressure vessel, with a paddle stir bar mounted in the center of the vessel. No technology or device exists within the main reactor .

Based on the various facts, Danzik ordered open and single blind testing completed at two well known, nationally certified tribology laboratories. The tests were to determine the suitability of the RDO and a complete ASTM D396 and ASTM D975 test battery. The CWT/RES RDO failed all testing at both ALS Tribology and Bentley Tribology Laboratories.

On a customer service trip during the week of 9-24 through 9-27, John Shaw, a former RES employee that was invited to travel with RDX management admitted to Danzik, Scott Havrisik, Vincent Meli and Robert Everett that the fuel specifications at Carthage were "selective" and that RES never submitted the fuel produced to a full ASTM D396 test battery and that "no clear benefit was gained by processing fats into supposed "fuel" at RES". Mr. Shaw also informed the same people during the flight that he knew of the some of the destructive characteristics of the "fuel" that was produced at Carthage. When questioned about where all of the fuel that was tested came from, Shaw stated that he believed that it was all produced in Philadelphia.

On October 9th in the engineering conference room in Scottsdale Arizona, Jim Saxton, a former manager for CWT/RES employee admitted to Danzik, Vincent Meli, John Shaw, David Bogardus and Candy Blazar that all of the samples submitted for approval and for independent testing by Brookhaven Laboratories were in fact manufactured in the CWT / TDP laboratory located in Philadelphia, and "doctored" so that the fuel manufactured in Philadelphia would pass ASTM D396 standards. The data from Brookhaven was then used to obtain an RFS2 Pathway from the Environmental Protection Agency and the successful submission of an Internal Revenue Service 637 audit in 2010.

The facts presented on these first three pages in no way presents every fact discovered from May through September of 2013. It is also not representative of the over 1,400 documents identified during this investigation. It is merely an effort to give the reader a primer on basic facts and a timetable of the transaction, events and lagging due diligence that was completed.

Employees / Former Employees / Contractors / Customers:
Direct impact / Phantom Shipments/ Destructive Nature of Product

First hand account witnesses:

1. Candy Blazar
2. Jim Saxton
3. Vincent Meli
4. David Bogardus
5. Shane Cowheard
6. John Shaw
7. Scott Havrisik
8. Robert Everett
9. Anthony Calim
10. Michael Youngs
11. Cory Hyland
12. Geno Martin
13. Chad Pruitt
14. Hud Reiersgaard
15. Charles Sweet
16. Debbie Burks
17. Gilbert Talamantez
18. Michael Woods
19. Andy Hall
20. David Bromley
21. Dennis M. Danzik
22. John Doe 1 - Former Philadelphia Employee
23. John Doe 2 - Former Philadelphia Employee
24. John Doe 3 - Former RES Employee
25. John Doe 4 - Former RES Employee
26. John Doe 5 - Omega Proteins Employee
27. John Doe 6 - Omega Proteins Employee
28. Jason Purcell
29. Candy Purcell

Facts Discovered: ("fuel" "TPC") means the process itself or FFA derived from triglyceride at Carthage

1. "Fuel" is actually a free fatty acid derived from a triglyceride. No benefit.
2. "Fuel" is about 80% FFA and no beneficial chemical change has taken place.
3. pH is a 4 and when heated is a destructive fluid to tanks, piping, pumps, and boilers.
4. CWT never informed IRS or EPA that process had changed.
5. The reactor (known as "R-250) is nothing more than a tank with a stir paddle.
6. "Fuel" was manufactured for 5 straight weeks by operators with no working reactor.
7. "R-250" was "rebuilt" in 2 days in September.
8. Process is just grease and a small amount of sulfuric acid. Then "washed" with steam.
9. The "TCP" process can be duplicated in a 5 gallon bucket with acid and wash water.
10. There are no material benefits from the process.
11. Air stack tests just conducted show no difference between "TCP" "fuel" and brown grease that has been washed and filtered.
12. Dozens of documents show officers and managers attesting, in some cases under the penalty of perjury that the "fuel".
13. The "fuel" has never passed ASTM D396 or ASTM D975 in its history.
14. Fuel testing at labs were manipulated to exclude 6 to 7 pass fail criteria on the ASTM D396 Tests.
15. Much of the process, including "depolymerization" steps sworn and submitted to the IRS and EPA are not even a part of the "TPC" process.
16. Material statements by former management states that "TPC" manufactures "fertilizer", when if fact it does not.
17. Current and former employees have made written statements that they are aware of the "gray area" and that the process is not "real" and has not been "real" since late 2007.
18. "Fuel" has caused hundreds of thousands of dollars in damages at Omega and APC.
19. We have been ordered by the IRS to file new 637's and to file with EPA.
20. There is preliminary evidence that accounting, tax filing and other irregularities have occurred from late 2011 through 2012.

EPA sets public hearing for RFS2, clarifies heating oil RIN issue

By Luke Geiver | July 05, 2011

Following the release of the proposed rule for the 2012 renewable fuel standard's volume requirements set forth by the U.S. EPA, a public hearing has been set for July 12. The hearing will allow interested parties to provide commentary on the 2012 version of RFS2. Under the currently proposed version for 2012, the RFS2 will require 1 billion gallons of biomass-based diesel.

The hearing will be held at the Washington Marriott at Metro Center in Washington, D.C., beginning at 9 am. According to the EPA, the hearing will "end when all parties present who wish to speak have had an opportunity to do so." Anyone with plans to testify at the hearing needs to contact the EPA before the event.

In addition to the time dedicated to the publishing of the final rule, the EPA has also been busy with inquires regarding RIN generation for heating oil and renewable fuel use in heating oil. Through a statement sent out by the EPA's electronic message system, EnviroFlash, the EPA stated that "parties may not blend fuel oils that only meet the definition of fuel oil grade Nos. 4, 5 or 6 to qualify as heating oil No. 1 or No. 2 and generate RINs."

And, the EPA said, "RINs generated for renewable fuel (other than biodiesel) used as heating oil must be retired if it only meets the definition of fuel oil grade Nos. 4, 5, or 6." The EPA explained that heating oil is defined, or means, any No. 1 or No. 2 or nonpetroleum diesel blend sold for use in furnaces, boilers and similar applications which are commonly known or sold as commercial heating oil, fuel oil "that is not jet fuel, kerosene or MVNRLM diesel fuel." Based on the definition, the EPA said that fuel oils grade Nos. 4, 5 or 6 don't qualify on their own as heating oil, nor does blending these fuels to produce No. 1 or No. 2 grade heating oil, satisfy the previously mentioned definition. "Therefore, producers of fuel oils grade Nos. 4, 5 or 6 cannot generate RINs for heating oil. Additionally, any RINs generated for a renewable fuel (other than biodiesel) used as heating oil that only meets the definition of fuel oil grade Nos. 4, 5 or 6," the EPA said, "must be retired."

Reply Reply All Forward

Mon 6/10/2013 4:13 AM

Susan Olson <solson@genscape.com>

RE: A Thank You!

To 'Dennis M Danzik'

Cc Candy Blazar

This message has been replied to or forwarded.

Dennis –

I will be sending you something more substantive a little later, but to alleviate concerns, a fuel doesn't have to be hydrocarbons to qualify for RFS2 RIN generation. If it did, however, that would resolve the fuel qualification. That was the reason for this question.

Where my question comes from is that the EPA requested comment in the proposed rule for QAP about creating a new fuel category for renewable diesel composed of triglycerides called "viscous non-ester renewable diesel." They sought comment on changing the rules such that viscous non-ester renewable diesel would be required to be used as a blendstock or additive for gasoline or diesel fuels. Again, this is something new. Below is a relevant excerpt, and I will send you the proposed rule document with a reference to the section. Again, this is something the EPA sought comment on, and it is not an existing rule.

"Some renewable fuel producers are currently generating RINs for fuel that they claim meets the exiting definition of renewable diesel, but which is not chemically equivalent to a petroleum diesel fuel under the renewable diesel definition. This product is primarily composed of triglycerides that have not been chemically converted to a hydrocarbon, and can be produced through simple filtration of vegetable oils with little processing equipment or effort. Further, this product cannot be used as a 'drop-in' transportation fuel but instead can only be used at blend levels with diesel fuel that are approved under 40 CFR Part 79, and moreover it is commonly used for non-qualifying fuel uses. To address these issues, we are proposing to clarify in the definition of 'non-ester renewable diesel' that qualifying products must be approved under 40 CFR Part 79 at specific blend levels with diesel fuel... The EPA believes that the only current allowable use for these other fuels (insofar as RINs are associated with them) would be as a blending component or additive for gasoline or diesel fuels."

I have formulated a plan to analyze the fuel from Carthage and will share that plan with you today.

Kind Regards,
Susan

GENSCAPE

1. Rated "Top Tier by EPA"
2. Solid reputation.
3. Handles "much more" than biodiesel.
4. Has 50% more clients than next competitor.
5. Recommended by Exxon.
6. Recommended by former director of EPA.
7. Recommended by former COO and DAG of EPA.
8. Worked hard to get us QAP approved.
9. Performed first fuel testing that identified "TCP" as failure.

Element Markets LLC

RIN ASSURANCE PROGRAM

CHANGING WORLD TECHNOLOGIES

CWT CHANGING WORLD TECHNOLOGIES, INC.

Changing World Technologies

530 North Main Street

Carthage, MO 64836

3555 Timmons Lane, Suite 900, Houston, Texas 77027
Tel: (281) 207-7200 Fax: (281) 207-7211
www.elementmarkets.com

CWT

Changing World Technologies, Inc., (CWT) uses a successfully commercialized technology called Thermal Conversion Process (TCP) to convert mixed waste into fuel oil that meets or exceeds fuel industry standards under ASTM-D396. We are currently producing oil at our 15mm gallon per year facility in Carthage, MO. We have included a brief presentation labeled "Fuel Introduction 2011" to explain the technology and fuel. It includes a real world analysis on the potential emission impact of a Title V entity, based upon actual results from an un-tuned 1500 HP boiler. These results have been acceptable to a number of regulators in different States and should enhance the sustainability of a Title V entity. TCP converts a broad range of organic wastes, including agricultural and food processing waste into a renewable diesel fuel oil ("RDO"). TCP is a non-combustion process that emulates the earth's natural geological and geothermal processes that transform organic material into fossil fuels through the application of heat and pressure in the presence of water. We control the temperature and pressure to produce a clean consistent fuel with well-established specifications and properties (i.e. sulfur, BTU's and ash). These properties are the standards used to measure performance and emissions from stationary combustion equipment; ASTM-D396. The approach employed by TCP is of interest to waste producers because of the flexibility in dealing with their mixed waste streams which assures CWT of adequate supply. The fuel is of interest to users who are looking for high quality fuel and who also seek to address sustainability issues.

CWT

CWT recently partnered with Brookhaven National Laboratory (BNL) and the Society for Energy and Environmental Research (SEER) to study the characteristics of the fuel produced from trap and waste greases. Attached is an emissions test on a residential sized boiler comparing RDO with No.2 oil. Noted in the combustion test, there is a reduction in NOx and CO emissions. Also attached is a corrosion test performed at BNL (titled "FW: Pictures"). As for the corrosion test, RDO was stored for 7 months at 140 degrees Fahrenheit with copper and carbon steel coupons. Results show there is no corrosion. We store RDO at about ~100 degrees Fahrenheit which will have no adverse effect on the storage of the material. The fuel has properties of a mild acid due to its origin and carboxylic chain. Issues with acidity can occur when the fuel comes in contact with extremely hot surface areas prior to combustion (i.e. the surface of a heat exchanger or the tip of an oil gun). RDO is classified as a carboxylic oil and with carbon steel, corrosion will occur at high temperatures. Upgrading minor pieces of equipment to stainless steel (burner tip & exchangers), eliminates any potential for corrosion. We have included the MSDS for RDO.

In response to new concerns raised from recent EPA rulings related to burning nonhazardous solid wastes, the approach CWT utilized was to meet an established specification that governs fuel use in stationary boilers. RDO is not a solid waste or SVO. It is a qualified fuel under long established ASTM-D396 guidelines with combustion characteristics to No.2 oil and with handling characteristics of No.4 oil The main difference in the fuels is the source of RDO feedstock is not crude oil, but a sustainable, renewable source, waste.

There are ASTM standards established in using fuels for combustion. ASTM provides standards and guidelines for industry and regulators to have a way to measure expected performance and emissions for different fuels in combustion engines. RDO meets this standard avoiding complicated permitting issues often seen with other biofuels. The ASTM D-396 standard is highlighted below:

Form **W-9**
(Rev. January 2011)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)
CHANGING WORLD TECHNOLOGIES, INC.

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification (required): ☐ Individual/sole proprietor ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶

☐ Exempt payee

☐ Other (see instructions) ▶

Address (number, street, and apt. or suite no.)
460 HEMPSTEAD AVENUE

Requester's name and address (optional)

City, state, and ZIP code
WEST HEMPSTEAD, NY 11552

List account number(s) here (optional)

Part I **Taxpayer Identification Number (TIN)**

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number
☐☐☐ – ☐☐ – ☐☐☐☐

Employer identification number
86 – 0892450

Part II **Certification**

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here Signature of U.S. person ▶ [illegible] V.P. Date ▶ 10/17/11

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

• An individual who is a U.S. citizen or U.S. resident alien,

NO ASTM D396

Not a single instance of "Fuel" passing ASTM D396 or D975

Midwest Laboratories, Inc.

13611 "B" Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121
www.midwestlabs.com

Report Number
11-332-2078

Page 1 of 1

REPORT OF ANALYSIS

For: (27652) RENEWABLE ENV SOLUTIONS LLC
(417)358-4922

Mail to: RENEWABLE ENV SOLUTIONS LLC
JASON PARNELL
530 NORTH MAIN ST
CARTHAGE MO 64836

RES RDO

Date Reported: 11/28/11
Date Received: 11/25/11
Date Sampled: Not Supplied
Time Sampled: Not Supplied

Lab number: 1927358 Sample ID: 28860

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date	Verified-Date
British Thermal Units	16,359	BTU/lb	20	ASTM D240-87	cmw-11/28	cmw-11/28
Sulfur (total)	509	ppm	100	ASTM 5453	lms-11/28	lms-11/28

For questions contact

Heather Ramig

Heather Ramig
Client Service Representative
heather@midwestlabs.com (402)829-9891

The result(s) issued on this report only reflect the analysis of the sample(s) submitted. For applicable test parameters, Midwest Laboratories is in compliance with NELAC requirements.

ATLANTIC
Product Services, Inc.
EPA RFG No. 1008 U.S. CUSTOMS APPROVED
N.Y.S. ELAP No. 10750 U.S. EPA No. NY00071

2 Terminal Road
KMI Building OB2
Carteret, New Jersey 07008
Phone (732) 969-4800
Fax (732) 969-1112
Email ops@apsinsp.com

INSPECTIONS OF QUALITY

TK / VESSEL/ UNIT: TANK 27 WESTWAY FEED PRODUCTS
CUSTOMER: CHANGING WORLD TECHNOLOGIES
CITY, STATE: WEST HEMPSTEAD, NY
PRODUCT: BIO FUEL

APS FILE NUMBER: 82317A
LAB NUMBER: 23851
DATE SAMPLED: 11/29/2011
DATE TESTING COMPLETED: 12/1/2011

ON A SUBMITTED BIO FUEL SAMPLE
THE FOLLOWING ANALYTICAL RESULTS WERE OBTAINED

METHOD No.	TESTS	UNITS	RESULTS
D482	ASH CONTENT	WEIGHT %	0.038
D2622	SULFUR	PPM	841
D524	CARBON RESIDUE-RAMSBOTTOM	WEIGHT %	0.81
D5291	CARBON	WEIGHT %	74.09
D5291	HYDROGEN	WEIGHT %	11.81
D5291	NITROGEN	WEIGHT %	0.27
D5291	OXYGEN	WEIGHT %	13.75
D86	DISTILLATION		
	°F.	@ IBP	330
	°F.	@ 10 %	600
	°F.	@ 50 %	644
	°F.	@ 90 %	680
	°F.	@ END PT.	680
	VOLUME %	RECOV.	91.0
	VOLUME %	RESIDUE	9.0
	VOLUME %	LOSS	0.0

Stephen Levano
Atlantic Product Services, Inc.

Foth

May 12, 2010

Mr. Jim Freiss
Changing World Technologies, Inc.
460 Hempstead Ave
West Hempstead, NY 11552

Dear Mr. Freiss:

RE: Third-Party Certification of Changing World Technologies/Renewable Environmental Solutions (RES) Biofuels Process

This letter report has been prepared to specifically address the requirements of certain Federal regulations as they pertain to biofuels processes, specifically the Renewable Environmental Solutions (RES) biofuels process referred to as Thermal Conversion Process (TCP) or also known as Thermal Depolymerization Process (TDP).

1. Regulatory Overview

Regulations pertaining to engineering
Code of Federal Regulations (CFR) F
detailed in 40 CFR 80.1450. A copy
Certification is provided in Attachme
provide "an independent third party e
information provided pursuant to par
80.1450 (b)(1), and applicable site-sp

40 CFR 80.1450 (b) (1)

Per 40 CFR Part 80.1426 (f) (1) Char
Environmental Solutions, LLC site in
meets the heating oil definition under
petroleum to produce this fuel). The

Foth

May 12, 2010

Mr. Jim Freiss
Changing World Technologies, Inc.
460 Hempstead Ave
West Hempstead, NY 11552

Dear Mr. Freiss:

RE: Documents Relied Upon for Engineering Certification

The following are documents I relied on for my certification, some of which are confidential proprietary company data and have been marked as such.

1. Description of RES TCP Renewable Fuels Process

Consistent with 40 CFR 80.1450 (b)(1)(i) through (iv), I have obtained a more detailed description of the facility's renewable fuel production processes. This process is described in greater detail in this section. More detailed mass balance and process flow information is provided in Attachment 1.

The TCP process is entails five basic steps:

1. Pulping and slurrying the organic feed with water
2. Heating the slurry under pressure to the desired temperature.
3. Flashing the slurry to a slower pressure to separate the mixture.
4. Separating the end products

1.1 *Discover* Article

An article in *Discover* magazine published in April 2006 provides a brief and simple description of the TCP process, thus, I have provided an excerpt in this certification as it provides additional verification that the process is understandable, and the equipment exists.

> "…At first blush, the thermal conversion process seems straightforward. The first thing a visitor sees when he steps into the loading bay is a fat pressurized pipe, which pushes the guts from the receiving hopper into a brawny grinder that chews them into pea-size bits…A first-stage reactor breaks down the stuff with heat and pressure, after which the pressure rapidly drops, flashing off excess water and minerals. In turkeys, the minerals come mostly from bones, and these are shunted to a storage bin to be sold later as a high-calcium powdered fertilizer.

14 Corporate Woods, Suite 650 • 8717 West 110th Street • Overland Park, KS 66210 • (913) 469-0686 • Fax: (913) 469-0688

> "The remaining concentrated organic soup then pours into a second reaction tank— the two-stage nature of the process distinguishes it from dozens of failed single-stage waste-to-oil schemes devised over the last century—where it is heated to 500 degrees Fahrenheit and pressurized to 600 pounds per square inch. In 20 minutes, the process replicates what the deep earth does to dead plants and animals over centuries, chopping long, complex molecular chains of hydrogen and carbon into short-chain molecules. Next, the pressure and temperature drop, and the soup swirls through a centrifuge that separates any remaining water from the oil. The water, which in the case of slaughterhouse waste is laden with nitrogen and amino acids, is stored to be sold as a potent liquid fertilizer. Meanwhile, the oil goes to the storage tank to await the next truck. …The oil itself meets specification D396, a type widely used to power electrical utility generators."

1.2 Current Process Evaluation

I obtained and reviewed a copy of current process information from CWT (Attachment 1). This information includes three basic elements:

1. Basic material balance considering raw material input and RDO output
2. Process and instrumentation diagram
3. Process flow diagram and material balance analysis

The basis material balance is documented in a spreadsheet titled, "Annual RDO Yield from Carthage – Basis – Fat and Protein Known Conversion Rates". These data show the raw material inputs (poultry offal, restaurant grease, and dissolved air floatation (DAF) skimmings), the plant capacity (32 gpm or 234 tons/day) and the final RDO produced (11,500,000 gallons/year).

The process and instrumentation diagram best illustrates the flow of raw materials through process equipment and eventually to five basic outputs (RDO, liquid fertilizer concentrate, solid fertilizer/minerals, water, and non-condensable gas). The primary sequence of processing is reflected by the following:

1. Storage, pretreating, and mixing in T-120A
2. Depolymerization in V-265
3. Hydrolysis preparation in V-140 followed by hydrolysis in R-250
4. Pressure reduction and energy recovery in V-261 and V-270
5. Liquid/solids separation in C-280/C-285
6. Liquid/liquid separation in C-276R/C-375
7. Liquid fertilizer concentration in the Vapor Recompression System

The material balance (Material Balance – Grease Plant – 230 Tons per Day Capacity) further quantifies the flow of the basic solid and liquid materials through the TCP process. The energy

Mr. Jim Freiss
Changing World Technologies, Inc.
May 12, 2010
Page 2

"The remaining concentrated organic soup then pours into a second reaction tank— the two-stage nature of the process distinguishes it from dozens of failed single-stage waste-to-oil schemes devised over the last century—where it is heated to 500 degrees Fahrenheit and pressurized to 600 pounds per square inch. In 20 minutes, the process replicates what the deep earth does to dead plants and animals over centuries, chopping long, complex molecular chains of hydrogen and carbon into short-chain molecules. Next, the pressure and temperature drop, and the soup swirls through a centrifuge that separates any remaining water from the oil. The water, which in the case of slaughterhouse waste is laden with nitrogen and amino acids, is stored to be sold as a potent liquid fertilizer. Meanwhile, the oil goes to the storage tank to await the next truck. …The oil itself meets specification D396, a type widely used to power electrical utility generators."

1.2 Current Process Evaluation

I obtained and reviewed a copy of current process information from CWT (Attachment 1). This information includes three basic elements:

1. Basic material balance considering raw material input and RDO output
2. Process and instrumentation diagram
3. Process flow diagram and material balance analysis

The basis material balance is documented in a spreadsheet titled, "Annual RDO Yield from Carthage – Basis – Fat and Protein Known Conversion Rates". These data show the raw material inputs (poultry offal, restaurant grease, and dissolved air floatation (DAF) skimmings), the plant capacity (32 gpm or 234 tons/day) and the final RDO produced (11,500,000

Processes NOT performed but claimed in officially submitted document to Federal Authorities

The process and instrumentation diagram best illustrates the flow of raw materials through process equipment and eventually to five basic outputs (RDO, liquid fertilizer concentrate, solid fertilizer/minerals, water, and non-condensable gas). The primary sequence of processing is reflected by the following:

1. Storage, pretreating, and mixing in T-120A
2. Depolymerization in V-265
3. Hydrolysis preparation in V-140 followed by hydrolysis in R-250
4. Pressure reduction and energy recovery in V-261 and V-270
5. Liquid/solids separation in C-280/C-285
6. Liquid/liquid separation in C-276R/C-375
7. Liquid fertilizer concentration in the Vapor Recompression System

The material balance (Material Balance – Grease Plant – 230 Tons per Day Capacity) further quantifies the flow of the basic solid and liquid materials through the TCP process. The energy

Foth

May 12, 2010

1. Regulatory Overview

40 CFR 80.1450 (b) (1)

Changing World Technologies, Inc

ASTM D-975 Standard Specification for Fuel Oils:

1. Scope*
1.1 This specification covers seven grades of diesel fuel oils suitable for various types of diesel engines. These grades are described as follows:

D 975 – 04b

TABLE 1 Detailed Requirements for Diesel Fuel Oils[A]

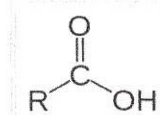
Property	ASTM Test Method[B]	No. 1-D S15	No. 1-D S500[C]	No. 1-D S5000[D]	No. 2-D S15	No. 2-D S500[C,E]	No. 2-D S5000[D,E]	No. 4-D[D]
Flash Point, °C, min	D 93	38	38	38	52[E]	52[E]	52[E]	55
Water and Sediment, % vol, max	D 2709	0.05	0.05	0.05	0.05	0.05	0.05	
	D 1796	…	…	…	…	…	…	0.50
Distillation, one of the following requirements shall be met. 1. Physical Distillation Distillation Temperature, °C 90 %, % vol recovered	D 86							
min		—	—	—	282[E]	282[E]	282[E]	…
max		288	288	288	338	338	338	…
2. Simulated Distillation Distillation Temperature, °C 90 %, % vol recovered	D 2887							
min						300[E]	300[E]	
max		304	304			356	356	
Kinematic Viscosity, mm^2/S at 40°C	D 445							
min		1.3	1.3	1.3	1.9[E]	1.9[E]	1.9[E]	5.5
max		2.4	2.4	2.4	4.1	4.1	4.1	24.0
Ash % mass, max	D 482	0.01	0.01	0.01	0.01	0.01	0.01	0.10
Sulfur, ppm (μg/g)[F] max	D 5453	15	—	—	15	—	—	—
	D 2622[G]	…	0.05	—	…	0.05	—	—
	D 129	—	…	0.50	—	…	0.50	2.00
…rosion rating max 3 h	D 130	No. 3	No. 3	No. 3	No. 3	No. 3	No. 3	…
…min[H]	D 613	40[I]	40[I]	40[I]	40[I]	40[I]	40[I]	30[I]
One of the following properties must be met:								
(1) Cetane Index, min.	D 976-80[G]	40	40	—	40	40	—	…
(2) Aromaticity, % vol, max	D 1319[G]	35	35	—	35	35	—	…
Operability Requirements								
Cloud point, °C, max	D 2500	J	J	J	J	J	J	J
or								
LTFT/CFPP, °C, max	D 4539/ D 6371							
Ramsbottom carbon residue on 10 % distillation residue, % mass, max	D 524	0.15	0.15	0.15	0.35	0.35	0.35	…
Lubricity, HFRR @ 60°C, micron, max[K]	D 6079	—	520	520	—	520	520	—

[A] To meet special operating conditions, modifications of individual limiting requirements may be agreed upon between purchaser, seller, and manufacturer.

TCP produced "Renewable Diesel" meets standards which are more stringent than 80.2 (ccc)

Carboxylic acid

From Wikipedia, the free encyclopedia

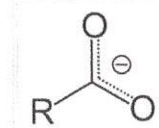


Structure of a carboxylic acid

A **carboxylic acid** /kɑrbɒkˈsɪlɪk/ is an organic acid characterized by the presence of at least one carboxyl group.[1] The general formula of a carboxylic acid is R-COOH, where R is some monovalent functional group. A **carboxyl group** (or **carboxy**) is a functional group consisting of a carbonyl (RR'C=O) and a hydroxyl (R-O-H), which has the formula -C(=O)OH, usually written as -COOH or $-CO_2H$.[2]

Carboxylic acids are Brønsted-Lowry acids because they are proton (H^+) donors. They are the most common type of organic acid. Among the simplest examples are formic acid H-COOH, which occurs in ants, and acetic acid CH_3-COOH, which gives vinegar its sour taste. Acids with two or more carboxyl groups are called dicarboxylic, tricarboxylic, etc. The simplest dicarboxylic example is oxalic acid $(COOH)_2$, which is just two connected carboxyls. Mellitic acid is an example of a hexacarboxylic acid. Other important natural examples are citric acid (in lemons) and tartaric acid (in tamarinds).

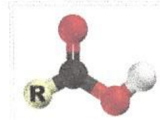
Salts and esters of carboxylic acids are called carboxylates. When a carboxyl group is deprotonated, its conjugate base forms a carboxylate anion. Carboxylate ions are resonance stabilized and this increased stability makes carboxylic acids more acidic than alcohols. Carboxylic acids can be seen as reduced or alkylated forms of the Lewis acid carbon dioxide; under some circumstances they can be decarboxylated to yield carbon dioxide.



Carboxylate ion

Contents [hide]

FFA from Triglyceride

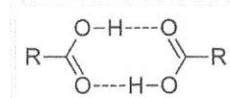


The 3D structure of the carboxyl group

Physical properties [edit]

Solubility [edit]

Carboxylic acids are polar. Because they are both hydrogen-bond acceptors (the carbonyl) and hydrogen-bond donors (the hydroxyl), they also participate in hydrogen bonding. Together the hydroxyl and carbonyl group forms the functional group carboxyl. Carboxylic acids usually exist as dimeric pairs in nonpolar media due to their tendency to "self-associate." Smaller carboxylic acids (1 to 5 carbons) are soluble in water, whereas higher carboxylic acids are less soluble due to the increasing hydrophobic nature of the alkyl chain. These longer chain acids tend to be rather soluble in less-polar solvents such as ethers and alcohols.[3]



Carboxylic acid dimers

Boiling points [edit]

Carboxylic acids tend to have higher boiling points than water, not only because of their increased surface area, but because of their tendency to form stabilised dimers. Carboxylic acids tend to evaporate or boil as these dimers. For boiling to occur, either the dimer bonds must be broken, or the entire dimer arrangement must be vaporised, both of which increase enthalpy of vaporization requirements significantly.

Occurrence and applications [edit]

Many carboxylic acids are produced industrially on a large scale. They are also pervasive in nature. Esters of fatty acids are the main components of lipids and polyamides of aminocarboxylic acids are the main components of proteins.

Carboxylic acids are used in the production of polymers, pharmaceuticals, solvents, and food additives. Industrially important carboxylic acids include acetic acid (component of vinegar, precursor to solvents and coatings), acrylic and methacrylic acids (precursors to polymers, adhesives), adipic acid (polymers), citric acid (beverages), ethylenediaminetetraacetic acid (chelating agent), fatty acids (coatings), maleic acid (polymers), propionic acid (food preservative), terephthalic acid (polymers).

Synthesis [edit]

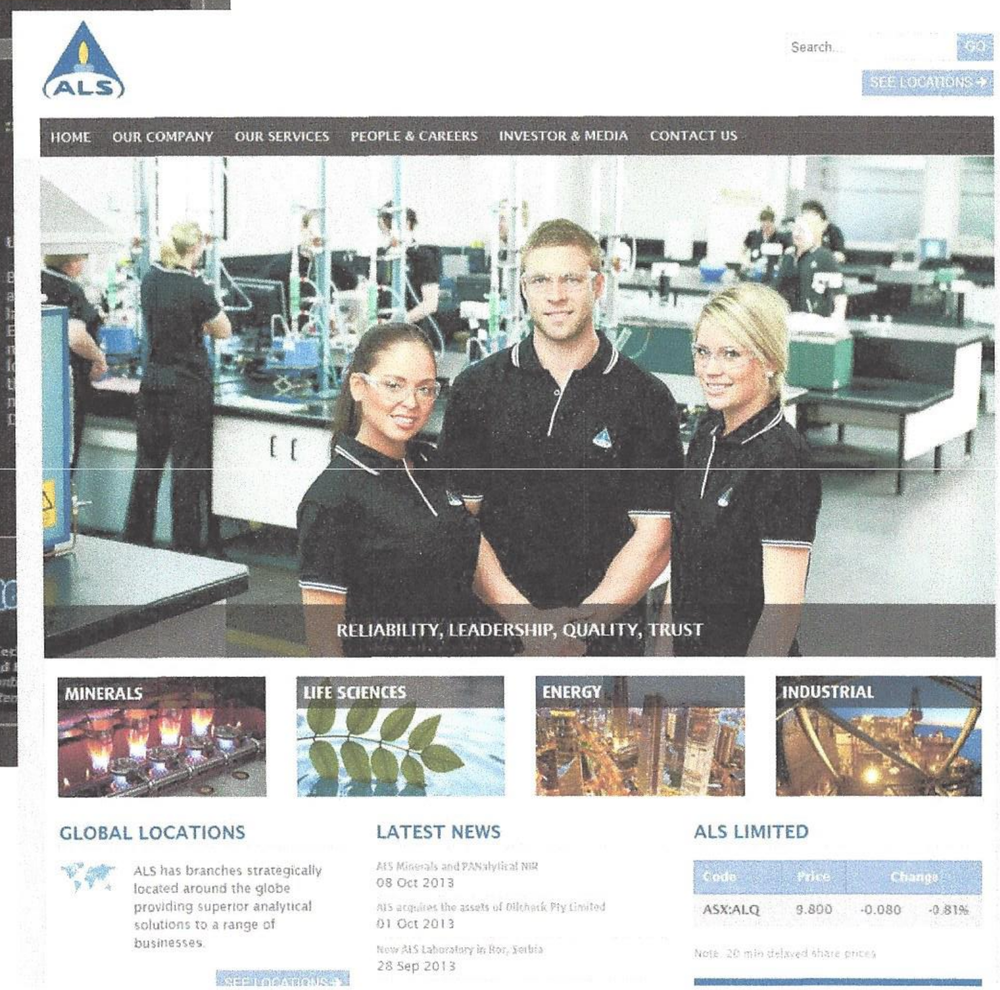
Industrial routes [edit]

Industrial routes to carboxylic acids generally differ from those used on smaller scale because they require specialized equipment.

- Oxidation of aldehydes with air using cobalt and manganese catalysts. The required aldehydes are readily obtained from alkenes by hydroformylation.
- Oxidation of hydrocarbons using air. For simple alkanes, the method is nonselective but so inexpensive to be useful. Allylic and benzylic compounds undergo more selective oxidations. Alkyl groups on a benzene ring oxidized to the carboxylic acid, regardless of its chain length. Benzoic acid from toluene and terephthalic acid from para-xylene, and phthalic acid from ortho-xylene are illustrative large-scale conversions. Acrylic acid is generated from propene.[7]
- Base-catalyzed dehydrogenation of alcohols.
- Carbonylation is versatile method when coupled to the addition of water. This method is effective for alkenes that generate secondary and tertiary carbocations, e.g. isobutylene to pivalic acid. In the Koch reaction, the addition of water and carbon monoxide to alkenes is catalyzed by strong acids. Acetic acid and formic acid are produced by the carbonylation of methanol, conducted with iodide and alkoxide promoters, respectively and often with high pressures of carbon monoxide, usually involving additional hydrolytic steps. Hydrocarboxylations involve the simultaneous addition of water and CO. Such reactions are sometimes called "Reppe chemistry":

  $HCCH + CO + H_2O \rightarrow CH_2{=}CHCO_2H$
- Some long chain carboxylic acids are obtained by the hydrolysis of triglycerides obtained from plant or animal oils; these methods are related to soap making.
- Fermentation of ethanol is used in the production of vinegar.

Laboratory Selections for Independent Testing



Cashman Equipment Co. dba Bently Tribology Services
CASHMAN CAT
600 Glendale Ave.
Sparks, NV 89431
TEL: 775.332.2476
FAX: 775.332.2425

Profile Code	EVRGRN-ENV	**Profile ID**	5174
Attention Of	Dennis Danzik		
Company	Evergreen Environmental		
End User			

EVRGRN-ENV - Batch #1030 - Summary Report

2 Total Sample(s)

Unit ID	Dt Taken	Sample #	Fuel
EE-001-2013-1002	02-Oct-2013	82836	
SAMPLE NOTE: Free Fatty Acid= 81.3 HOC is reported in BTU/lb-- FRB 10-7-13			
EE-002-2013-1002		82837	
SAMPLE NOTE: Free Fatty Acid= 79.6 HOC is reported in BTU/lb-- FRB 10-7-13			

SAMPLE NOTE: Triglyceride material that has been hydrolyzed into a paste.

ALS Tribology

RIDGELINE ENERGY SERVICES INC
14555 East 82nd St
Scottsdale AZ 85260
USA

Fuel Sample Analysis

UIN:	0364E63	Serial No.:	
Fuel Type:	Miscellaneous	Site:	
Tank ID:	E601 ASTM D396		

Compartment Name:	E601 ASTM D396	Date Sampled:	12-Sep-13
		Date Received:	25-Sep-13
Fuel Manufacturer:	Unidentified	Date Reported:	01-Oct-13
Fuel Type:	Unidentified	Lab No.:	40110352032
Tank Capacity:		WO No.:	
Tank Level at Test:		SIF No.:	14285425

TEST/METHOD	RESULTS	UNITS
Physical / Chemical		
Flash Point by PMCC (D93)	>150	°F
Pour Point (D97)	70	°F
Sulfur (D4294/D5453/D7039)	368	ppm
Water by Distillation (D95)	1.6	Volume %
Additional		
Sediment by Extraction (D473)	0.17	% (m/m)
Density Specific Gravity (D1298)	7.6100	
Conradson Carbon Residue on 10% Residue	1.24	%
Viscosity (cSt 50C)	14.7	

	RESULTS	ASTM D396				ASTM D975			
	Our Fuel	#1	#2	#4	#6	#1	#2	#4	#6
Flash Point	>150 F	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Pour Point	70 F	Fail	Fail	Fail	Fail	NS	NS	NS	NS
Sulfur	368 ppm	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Fail
Water by Distillation	1.6 Vol%	Fail	Fail	Fail	Fail	NS	NS	NS	NS
Sediment by Extraction	0.17 %(m/m)	Fail	Fail	Fail	Pass	NS	NS	NS	NS
Density Specific Gravity	7.61	Pass	Pass	Fail	Fail	NS	NS	NS	NS
Conredson Carbon Residue	1.24%	Fail	Fail	Fail	Fail	Fail	Fail	NS	Fail
Viscosity	14.7	Fail	Fail	Fail	Fail	Fail	Fail	Pass	Fail

Notes: NS means Not Specified. The ASTM Standard does not test for this.

Pass/Fail Results were conveyed to us by Lab Project Manager, Ambrose Hughey, Ambrose.Hughey@ALSGlobal.com

December 9, 2011

11-0145

CERTIFICATE FOR RENEWABLE DIESEL

Claimant: Renewable Environmental Solutions, LLC
460 Hempstead Avenue
West Hempstead, NY 11552
EIN # 91-2098593

The undersigned Renewable Diesel ("Producer") hereby certifies the following under penalties of perjury:

Producer certifies that the Renewable Diesel to which this certificate relates is diesel fuel derived from biomass (as defined in section 45K(c)(3)) using a thermal depolymerization process which meets the registration requirements for fuels and fuel additives established by EPA under § 211 of the Clean Air Act (42 U.S.C. § 7545), and the requirements of the American Society of Testing and Materials D975 or D396.

Producer certifies that the renewable diesel to which this certificate relates is: 100% Renewable Diesel (derived solely from biomass).

This certificate applies to the following:

1. 4322 Bill of Lading or Scale Ticket Number
2. 5919 Gallons of Neat Renewable Diesel (Loaded weight prior to #4 addition / 7.7=gallons)
3. 6 Gallons of #4 fuel for blending
4. 5925 Total Gallons of Blended Renewable Diesel

Producer understands that fraudulent use of this certificate may subject producer, claimant, and parties making such fraudulent use of this certificate to a fine or imprisonment, or both, together with the costs of prosecution.

Jason Parnell
Printed or typed name of person signing

Supply Chain Manager
Title of person signing

Renewable Environmental Solutions, LLC
Name of Producer

EIN # 91-2098593 IRS REG # 01-NY-2006-000153-M-NB
Employer identification number

530 North Main Street, Carthage, MO 64836
Address of Producer

Jason Parnell
Signature

12/9/11
Date

Phantom Shipments / EPA Forms / IRS Tax Claims

Analysis of 2011 Tax Filings and RINs Separated

Tax Credit Invoices		$ Amount	Date Paid
(Tax Credits are based on Sales)			
5/24/2011	$	5,912	6/20/2011
5/31/2011	$	30,383	6/24/2011
6/6/2011	$	18,249	7/1/2011
6/13/2011	$	12,260	7/5/2011
6/21/2011	$	20,976	7/18/2011
6/30/2011	$	24,285	8/2/2011
7/5/2011	$	48,639	8/4/2011
7/11/2011	$	30,632	8/8/2011
7/18/2011	$	53,720	8/25/2011
7/23/2011	$	53,080	8/23/2011
7/30/2011	$	29,566	9/1/2011
8/6/2011	$	11,785	9/19/2011
8/13/2011	$	29,298	9/15/2011
8/20/2011	$	5,924	9/28/2011
8/27/2011	$	22,766	10/11/2011
9/3/2011	$	22,896	3/16/2012
9/10/2011	$	11,868	10/6/2011
9/17/2011	$	21,908	10/17/2011
9/24/2011	$	22,612	10/27/2011
9/30/2011	$	22,843	11/10/2011
10/8/2011	$	11,401	11/7/2011
10/22/2011	$	22,389	11/28/2011
10/31/2011	$	50,666	11/18/2011
11/5/2011	$	17,938	12/19/2011
11/12/2011	$	51,954	12/15/2011
11/21/2011	$	34,753	12/15/2011
11/26/2011	$	29,289	12/19/2011
12/3/2011	$	46,788	2/13/2012
12/10/2011	$	61,176	1/17/2012
12/17/2011	$	85,685	1/17/2012
12/24/2011	$	270,438	3/1/2012
12/24/2011	$	58,528	1/23/2012
12/31/2011	$	345,311	2/3/2012
	$	1,585,918	

5/24/2011	$	5,912	
5/31/2011	$	30,383	
6/6/2011	$	18,249	
6/13/2011	$	12,260	
6/21/2011	$	20,976	
6/30/2011	$	24,285	
7/5/2011	$	48,639	
7/11/2011	$	30,632	
7/18/2011	$	53,720	
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8/13/2011	$	29,298	
8/20/2011	$	5,924	
8/27/2011	$	22,766	
9/3/2011	$	22,896	
9/10/2011	$	11,868	
9/17/2011	$	21,908	
9/24/2011	$	22,612	
9/30/2011	$	22,843	
10/8/2011	$	11,401	
10/22/2011	$	22,389	
10/31/2011	$	50,666	
11/5/2011	$	17,938	
11/12/2011	$	51,954	
11/21/2011	$	34,753	
11/26/2011	$	29,289	
	$	717,992	210 Day Rolling
	$	26,592.30	Total Normalized Average
	$	46,788	
	$	61,176	
	$	85,685	$ 118,062.04 ← Deviation per Tax Filing
	$	270,438	
	$	58,528	
	$	345,311	
	$	867,926	27 Day Rolling
	$	144,654.33	Total December Average

EPA RINS GENERATED	Batch #	RDO Production Qty (Per EPA Reports)	Feedstock Purchased (Converted)	Feedstock Rolling Inventory	Generated RIN Qty (Per EPA Reports)
	11-Feb Total	-	3,347	3,347	-
	11-Mar Total	-	37,733	41,080	-
	11-Apr Total	-	52,449	93,529	-
	11-May Total	110,159	79,078	62,448	187,270
	11-Jun Total	149,963	97,605	10,090	254,937
	11-Jul Total	204,384	186,537	(7,756)	347,453
	11-Aug Total	255,398	246,826	(16,328)	434,177
	11-Sep Total	106,836	133,244	10,080	181,621
	11-Oct Total	297,760	255,438	(32,242)	506,192
	11-Nov Total	164,607	170,278	(26,571)	279,832
	11-Dec Total	478,056	170,058	(334,570)	812,695
		1,767,163	1,432,593	(334,570)	3,004,177

* Based on Feedstock Log

2011 Production - 334,570 Missing Gallons - Claimed but not Produced

EPA RINS SEPARATED	RDO Production Qty (Per EPA Reports)	RDO Sales (Based on 2011 Tax Credits Filed)	Separated RIN Qty (Based on Waterfall Report)
	-	-	
	-	-	
	-	-	
61,763	110,159	36,331	10,050
201,404	149,963	118,473	178,480
294,488	204,384	173,228	359,609
147,791	255,398	86,936	147,792
144,745	106,836	85,144	144,744
114,323	297,760	67,249	114,334
259,017	164,607	152,363	296,284
1,474,854	478,056	867,561	1,439,702
2,698,385	**1,767,163**	**1,587,285**	**2,690,995**

* Sales Gallons are slightly more tha

EPA RINS GENERATED	Batch #	RDO Production Qty (Per EPA Reports)	Feedstock Purchased (Converted)	Feedstock Rolling Inventory	Generated RIN Qty (Per EPA Reports)
	11-Feb Total	-	3,347	3,347	-
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	11-Apr Total	-	52,449	93,529	-
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	11-Jun Total	149,963	97,605	10,090	254,937
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	11-Aug Total	255,398	246,826	(16,328)	434,177
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	11-Oct Total	297,760	255,438	(32,242)	506,192
EXTREME DEVIATION	11-Nov Total	164,607	170,278	(26,571)	279,832
	11-Dec Total	478,056	170,058	(334,570)	812,695
		1,767,163	**1,432,593**	**(334,570)**	**3,004,177**

* Based on Feedstock Log